

1

2

## What is claimed is:

201/4

1. A system for communicating an analog input signal as a modulated binary laser signal over a communication medium recovered as an output digital signal, the system comprising

6

7

5

a sigma delta modulator for receiving the analog input signal and modulating the analog signal into a modulated symbol signal,

8

9

a transmitter for converting the modulated symbol signal into the modulated binary laser signal, and for transmitting the modulated binary laser signal over the communication medium,

10

a receiver for receiving and detecting the modulated binary laser signal for providing a received symbol signal, and

12 13

a digital filter for filtering the symbol signal into the digital output signal.

15

16

17

14

2. The system of claim 1 wherein the transmitter comprises,

18

19

20

a symbol to binary converter for converting the modulated symbol signal from the sigma delta modulator into a converted digital signal, and

21

22

23

24

a pulse width modulator for modulating the laser signal by the converted digital signal into the modulated binary laser signal as a pulse width binary modulated laser signal communicated over the communication medium.

2526

27

28

3.	The system of claim 2 wherein the receiver comprises,
	a pulse width detector receiving the pulse width modulated
bin	ary laser signal and for providing a detected binary signal, and
	a binary to symbol converter for converting the detected binary
sig	nal into the received symbol signal.

4. The system of claim 3 wherein,

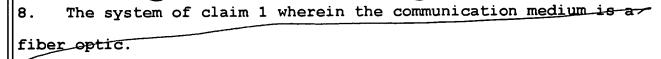
the pulse width detector is a pulse width quantizer detector,

the detected binary signal is a detected quantized signal,

the binary to symbol converter converts the detected quantized

signal into the received symbol signal.

- 5. The system of claim 1 further comprising,
  a timing recovery loop for generating a timing signal from the
  receive symbol signal for clocking the digital filter.
- 6. The system of claim 1 wherein,
  the sigma delta modulator is a first order sigma delta
  modulator.
- 7. The system of claim 1 wherein,
  the sigma delta modulator is a second order sigma delta
  modulator.



The transmitter of claim 1 wherein the pulse width modulated laser signal is an on off shift keying signal.

10. The transmitter of claim I wherein the modulated signal is a phase shift keying signal.

11. A system for communicating an analog input signal as a pulse width modulated binary laser signal over a communication medium recovered as an output digital signal, the system comprising

a sigma delta modulator for receiving the analog input signal and modulating the analog signal into a modulated symbol signal,

a transmitter for converting the modulated symbol signal into a converted digital signal for pulse width modulating a laser signal into the pulse width modulated binary laser signal, and for transmitting the pulse width modulated binary laser signal over the communication medium,

a receiver for receiving and detecting the pulse width modulated binary laser signal to provide a detected binary signal and for converting the detected binary signal into a received symbol signal, and

a digital filter for filtering the symbol signal into the digital output signal.